

Spot since a technology

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INSIDE THIS ISSUE • • •

You could say **Lauren Devine's** sweet 16th birthday gift was unique. Her father bought her a cheap electric guitar from a local pawnshop and, from that day forward, her passion for music has never pressed pause.



Brandon Fischer made a splash at the U.S. Olympic trials in Omaha, Nebraska last month, coming in 15th place in the 100- and 200-meter breaststroke events (only the top two advanced). But Fischer, at 32 years old, had a unique journey: he trained for those trials while holding down a full-time job as a mechanical technologist at LLNL's Jupiter Laser Facility.



Summer students arrive on-site every year looking for an opportunity of a lifetime. While COVID halted the actual on site visits, students still come to the Lab virtually and bring their own unique verve:



- Ariel Gluck
- James Brutus
- Tre' Jeter
- Aaron HiltonTitiksha Singh
- Micah Che

We hope you enjoy this edition of *SpotLight*. We'd also like to hear from you. Send us your thoughts and suggestions, whether it's what you like — or even what you don't — about this magazine, or if there is something you would like to see in coming editions. You can reach us via email at pao@llnl.gov.

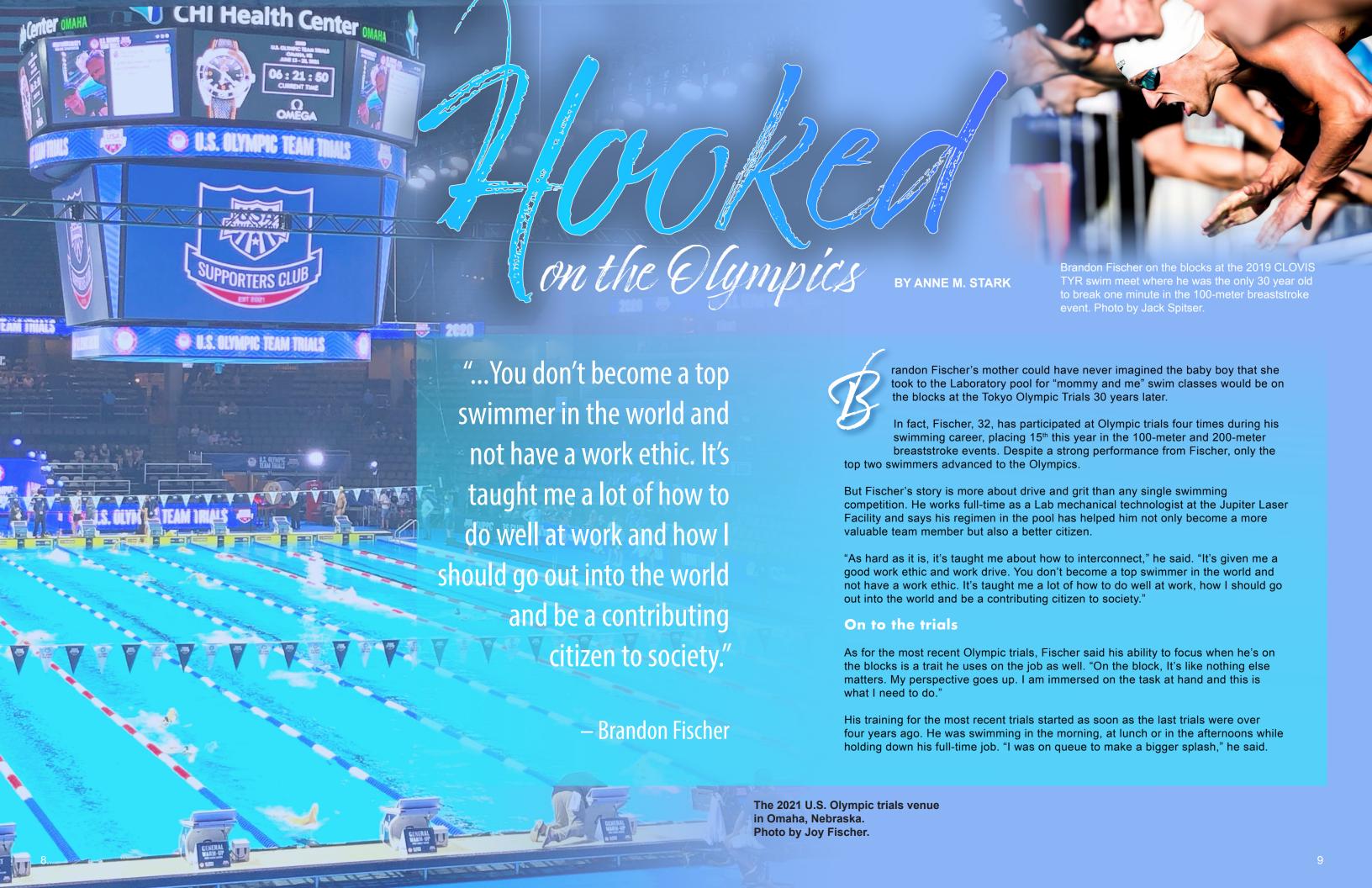
VISIT SPOTLIGHT ON THE WEB.

ON THE COVER
Brandon Fischer was the first
30 year old to break one minute in
the 100-meter breaststroke event in
2019. Photo by Jack Spitser.









When COVID hit, training became much more difficult with pools and gyms closed. He wound up swimming with a resistance band in a friend's backyard swimming pool and created a makeshift gym in his garage for weight training.

"It was hard to go from something (to train for) to nothing," the Livermore native said. "It literally was just keeping in touch with the water and keeping active and depending on muscle memory." That said, he achieved his best time this year in the 100-meter breaststroke event.

In 2019, Fischer had a breakthrough that reinforced his drive to the Olympics: He was the only 30 year old to break one minute in the 100-meter breaststroke event. That time not only earned him a spot on the U.S. national team, it got him noticed.

"Competition is a hard mindset to change because I've been built into it," he said. "It's still there. Once I get in the water, all gloves are off."

From guppy to shark

The very first time Fischer stepped in a pool it was at LLNL during those "mommy and me" classes. Every summer, he would advance in swimming lessons. Fischer's mother Joy and father Richard worked at the Lab at the time and wanted their son to be comfortable in the water.

"They had me enroll for safety so that I wouldn't drown," he said, chuckling. "My dad used to swim at lunch. The thing to do was swim at the Lab and do swim lessons. It was the community thing to do; everyone did it."

"The lessons taught us safety, how to swim, how to stay afloat and be comfortable in the water."

That comfort immersed Fischer into competition. He became very competitive in swimming at Granada High School. As a senior, he won North Coast Section championships in the 100- and 200-meter individual medley and received an athletic scholarship to the University of Wyoming. During his college years between 2008- 2013, he was an NCAA qualifier in 2012 and earned his bachelor's degree in fine arts. He returned to the Bay Area in 2015 and attended Las Positas College to earn a technical degree.

He currently holds the national age group records in masters swimming for his age bracket (30-34).

The road ahead

Fischer doesn't plan on quitting any time soon. With a goal of becoming a scientist, Fischer plans to apply for graduate school at the University of California, Berkeley and study nuclear mechanical engineering, all while holding down his full-time job. He is currently taking a break from his Olympic trial regimen — a 6,000-calorie a-day diet and swimming several hours each day — though he tries to swim 15-30 minutes a day at lunch.

"When I get done with a swim, I feel the endorphins and feel refreshed," he said. "It's a great lifelong healthy way of living. It's helped me perform well at work and it's allowed me to work better in the pool."

If he were a water animal, he says he would be a shark.

"There's more to a shark other than they want to bite us. I don't
want to be preconceived or judged. Like a shark, you think of the teeth,
but there's much more below the surface," he said – just as Fischer is more than
just a world-class swimmer.

As for going for it again in 2024, Fischer has a wise mindset.

"Sometimes my head talks me out of things, but my heart says you're going to do it. I don't know how I'm going to do it, but I want to go to 2024," he said. "I want to keep doing this to prove to myself that I can do it. I can make it despite what everyone else says. It's always going to be there. But it's nice to have the job because it keeps me sane."

Above: Fisher placed 15th in the 100- and 200-meter breaststroke event at the 2021 U.S. Olympic trials. Photo by Joy Fischer.





FINDING BALANCE IN FENCING AND MORE

BY MICHAEL PADILLA

Ariel Gluck says fencing has contributed to her success in the lab and in the classroom

When Ariel Gluck was 11 years old, she wanted to find a sport that did not involve running, so she Googled fencing. She found a club near her house and the rest is history.

Fast forward to today: As a fourth-year materials science engineering major at Ohio State University and an intern at Lawrence Livermore National Laboratory, she said fencing has been invaluable in teaching her how to balance time and priorities.

"Juggling engineering school and a varsity sport – even if I'm just a walk-on — is a crash course in precision time management," she said. "I have learned how to balance my career aspirations with developing myself as a complete person with an identity beyond my passion for engineering."

She said fencing is a sport that demands focus and it is the part of her routine where she can let go of school and work concerns and just enjoy herself.

Gluck said she has never been a competitive athlete. Growing up, she focused her drive solely on engineering pursuits like her robotics team.

"It was important to balance that intensity with an activity that I did for its own sake," she said. "Fencing triples as an outlet from work, exercise and a hobby. I appreciate having a hobby that forces me to stop thinking about whatever obligations are on my mind."

Fencing also has contributed to her success in the lab and in the classroom.

"Balancing daily three-hour practices with my rigorous coursework helped me develop excellent focus and time management skills, which were crucial to adapt to online classes and remote work," she said.

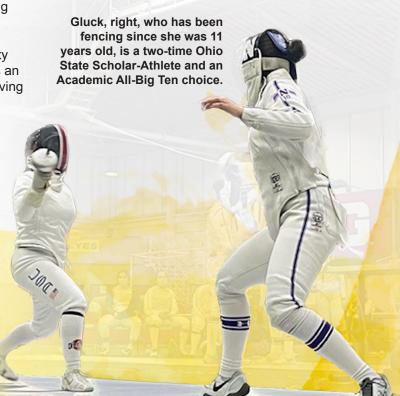
She has taken part in several projects at Ohio State's Center for Design and Manufacturing Excellence as well as a remote internship based in Tel Aviv. Her work on a project testing metal-printed lattices with nTopology software set

the foundation for her position at the Lab. She uses nTopology to optimize topology and design lattice structures for a range of projects at LLNL, including cellular fluidics, functional coatings and 3D printed glass.

Gluck said it is never too late to start a new hobby. Her mother started fencing shortly after Gluck started; a few years later, her mother qualified for the Veteran World Team.



In addition to fencing, Ariel Gluck enjoys rock climbing. She says hobbies are important to distract her mind from school and work.



STUDENT JAMES BRUTUS LOVES A CHALLENGE

BY STEVE WAMPLER

LLNL summer student James Brutus likes to set goals and meet them

Whether he's working as an intern on the world's most energetic laser, leading a national student association or competing in athletics, 22-year-old University of Central Florida senior James Brutus likes to set goals and try to meet them.

As an Air Force ROTC cadet, Brutus will spend the next nine months serving as the national commander of the Arlington, Virginia-based Arnold Air Society, a collegiate student professional development organization.

As the leader of the Arnold Air Society, Brutus' 2021-22 term runs through April 2022 and his "command" reaches about 2,800 ROTC cadets at 125 universities, including cadets at the Air Force Academy.

Brutus also enjoys athletic challenges. To date, he's biked 100 miles in the Florida Keys, run a 21-mile race, gone skydiving from 5,000 feet and scuba dived three times in Hawaii.

"I continue to challenge myself to try new things, as I've found that it helps me to develop a mindset that I can accomplish whatever I set my mind to achieve. When I see a new obstacle in my life to overcome, to give myself a bit of a motivational boost, I enjoy looking back at my previous accomplishments."

For the past six weeks, Brutus, who is seeking a bachelor's degree in photonics science and engineering, has served as a "virtual intern" for the National Ignition Facility & Photon Science (NIF&PS) directorate.

"This internship has definitely been what I was hoping it would be," Brutus said. "I was looking for something that was academically challenging and this internship has definitely challenged me.

"It's been humbling to learn how much there is to know. I've been taken aback by how bright and intelligent some of the people are that I've worked with. It sets the bar high for where I want to be in the future."

During his 15-week internship, which concludes Aug.
13, Brutus is part of a team conducting a plasma optics project, using multiple high-power lasers to create a plasma transmission grating. Brutus collects data from completed simulations, behind the scenes, so the team can prep for experimental tests.

The team plans to use a secondary probing laser pulse directed at the plasma profile created by the initial pulses.

Brutus called NIF "amazing," saying: "I was taken aback by the massive size of the laser system. I would love to be able to see it in operation."

LLNL summer student
James Brutus competed
in the three-mile America's
Mighty Warriors Military
Race, held in partnership
with the Clermont, Floridabased Clermont Triathlon
Club. In 2019, Brutus helped
coordinate bringing 30
participants to the race to
raise money for veterans'
traumatic brain injury
and post-traumatic stress
disorder treatments.





SUCCESS, DETERMINATION

Tre' Jeter says his martial arts background has helped shape his determination and resilience

unning, ping-pong, billiards, 10-pin bowling and martial arts. Those are among the hobbies that Lawrence Livermore National Laboratory computing intern Tre' Jeter uses as personal time to distract him from work and his studies.

"Each of my interests require me to be patient and logical, from how fast I start a run down to the oil pattern on a bowling lane," he said. "I have related this way of thinking to my personal life and have overcome personal challenges much easier than before."

He said earning a third-degree black belt in Tae Kwon Do and level-three yellow belt in Jiu Jitsu has really disciplined him in all of his endeavors.

"I don't give up easily and I think that level of determination and resilience is needed for this field of work to begin with," he said. "My martial arts background has helped shape that layer of perseverance."

His passion does not stop there. He began fiddling with computers at a young age, but he did not learn about computers extensively until his junior year of high school in the Scholars Academy at the University of South Carolina-Upstate. The program gave him a four-year head start on college, where he amassed 87 college credits as a high school student.

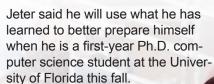
He matriculated through his undergraduate studies at Claflin University in Orangeburg, South Carolina. He was the first student in the institution's history to graduate with a dual degree combination of computer science and computer engineering while completing a cybersecurity minor. He graduated magna cum laude and took part in nine organizations while in college.

Jeter received his first internship at LLNL at the end of his freshmen year as a cybersecurity intern in Global Security. He worked on network mapping, vulnerability scanning and Python programming. He returned to the Lab as an intern in summer 2019 in Computing, where he worked on model-specific register analysis.

In 2020, he stepped away from the Lab to pursue a cybersecurity engineering internship with the Space Dynamics Laboratory in Logan, Utah. He gained more hands-on experience within security and was able to bring that knowledge back to LLNL this summer.

Tre' Jeter is a third-degree black belt in Tae Kwon Do and a level three yellow belt in Jiu Jitsu.

"The best part about my current research at LLNL is that it is completely relevant to LLNL needs," he said. "I know that what I'm working on will one day be implemented by the Lab upon its completion. I am learning at a very fast pace and applying it to my project."





Jeter was a member of the Claflin University men's track and field and cross country teams, where he participated in the 60-meter hurdles, heptathlon, 110-meter hurdles and 400-meter hurdles. PUTS BEST FOOT FORWARD

Aaron Hilton strives to be his best day in and day out

\\ou could say Aaron Hilton has two great loves: a devotion to country and enthusiasm for ballet. Up until a year ago last spring, Hilton was a professional ballet dancer with the Miami City Ballet where he danced with the troupe for three years. When the pandemic hit, that was the end of his professional ballet career.

But at 24, going on his junior year at Princeton University, Hilton isn't slowing down. He is studying in the school of Public and International Affairs, is a midshipman in the joint Rutgers/Princeton Navy Reserve Officer Training Corps (ROTC) unit and is working toward a commission in the Navy when he graduates. He is serving as an ROTC intern in the Lab's Center for Global Security Research this summer.

Hilton's current career didn't start off that way. He first started dancing in Moscow at 3 years old with his sister (his parents were both in the Foreign Service). "We moved around a bit," he said. "It was easier for my parents, who were both working, to put my older sister and me in the same activities."

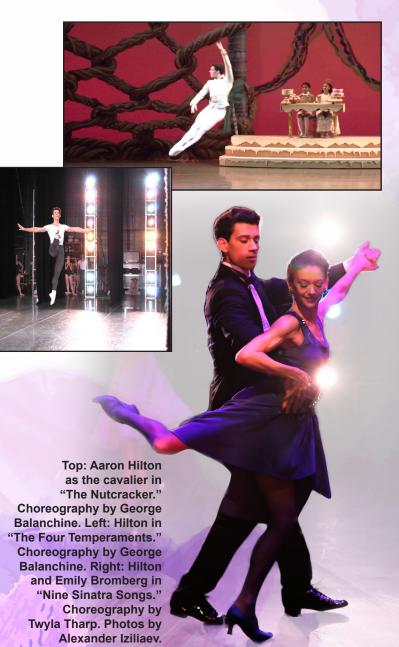
At 16, the family moved to Washington, D.C. Hilton applied to a dance academy in New York City to get more intense training. After graduation, he took a gap year before college to dance with the Boston

"I did my freshman year and thought after Boston I was done with ballet," Hilton said. "Then at the end of freshman year, I took an audition in New York and it was the first time this company had done an in-person audition in a long time. I got a job in Miami. I was able to take multiple years of absence from school and danced for 3 years until spring of 2020."

As the pandemic struck, Hilton went back to hitting the books and participating in ROTC activities. "Unfortunately, I think the ballet chapter has closed. The longer I delay my academic pursuits, the longer the process would be to start down a new career path."

Because his parents served in the Foreign Service. Hilton has a love for country and feels a career in the Navy can help him achieve his goals. But dance will always be a part of him.

"The discipline and time management skills I learned through my ballet training have helped me in other aspects of my life from academic studies to collegiate athletic pursuits," he said. "As a dancer, I learned how important it is to take care of yourself to be able to perform your best day in and day out."





FOR INNOVATION AND ENGINEERING

BY CARRIE MARTIN

A proud moment for

father when they met

Titiksha Singh and her

University President Satish

Tripathi on her first day at

the University at Buffalo.

Summer student Titiksha Singh looks to her father for inspiration

s a girl growing up in Delhi, India, summer intern Titiksha Singh watched her father, an electrical engineer, work extremely hard in the power sector.

In addition to India, their family of five lived in Germany, Austria and Qatar, where Singh saw how her father's work had a positive impact on society. Society of Women Engineers. From a young age, inspired by her father's efforts, Singh was drawn toward innovation and engineering.

Singh came to the United States in 2018 to pursue her education at the University at Buffalo. At 20 years old, she is an undergraduate student studying mechanical engineering with a concentration in manufacturing and mathematics. "I love it here," Singh said. "This is a place of opportunities, and I am so grateful for it."

While she enjoys working out and cooking, her primary focus has always been all things pertaining to science, technology, engineering and math (STEM).

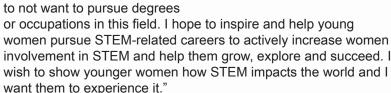
"I am extremely passionate about innovating, designing and manufacturing models that will help create an efficient and energy-sustainable world," Singh said. "I really enjoy mathematical algorithms and problem-solving."

Singh is a perfect match to work in LLNL's Atmospheric, Earth, & Energy division, where, under the mentorship of Michael Homel, she is working on a project to develop new biocements that significantly reduce the carbon footprint of cement production through the introduction of microbes that enable direct carbonization of the cement microstructure.

"The fact that everything that happens in this world can be justified with the help of scientific reasoning has always fascinated me. For me, science is the answer to everything. Physical laws and phenomena apply to everything on this planet and there is so much the world can achieve with the help of technology. These factors keep adding to my passion across the globe." and interest in engineering," she said.

As a woman in STEM, Singh has faced some challenges, which is why she is an advocate for other women in STEM. She is actively involved in the Phi Rho sorority and serves as secretary for the University at Buffalo's

"Seeing other women pursue their goals in the STEM field inspired me to want to help others and pursue my own interests as a woman that supports other women in engineering," she said. "There are a lot of stereotypes surrounding women in a STEM workplace. These stereotypes cause younger women



Along the way, Singh has learned about teamwork, friendship and the power of communication. "I have learned how important it is to be able to articulate your thoughts," she said. "I have learned that whatever happens, it is always important to take risks and explore all the possibilities. It is important to be patient. I have learned that time and tide wait for no man. It is very important to manage time and keep working hard."

Through her work as a teaching assistant in the Mathematics Department at the University at Buffalo, Singh discovered that she also loves teaching. "I am really passionate about teaching, sharing ideas and connecting with people on subjects of curiosity. I aspire to become a professor and teach thousands of students

DIVERSIFIED INTERESTS
THROUGH CRITTER CARE AND MORE

BY CARRIE MARTIN

A passion for animals inspires Micah Che to volunteer

icah Che grew up in San Jose with his parents, younger brother and family beagle, JoJo. He attended the Orion Academy, which required him to commute two hours every day. In 2014, the Laboratory's Abilities Champions Employee Resource Group and Diversity, Equity and Inclusion Programs partnered with Orion to develop an internship program for their students. Che connected with the Laboratory through this program.

One of Che's hobbies is conceiving and writing stories and drawing characters to illustrate them. While he enjoys researching and developing aspects of these stories, he has always loved animals, which in turn inspired him to become actively involved in wildlife conservation and preservation.

"I am honestly unsure where my interest in wildlife conservation began," Che said. "I feel I have always been into animals, but suspect it began taking off with my enjoyment of reading animal fact nonfiction books from the library as a child. Over time, this got me interested and now one of my interests is in helping animals and wildlife. I know a lot about several species of animals in our world and am invested in information on their conservation."

Che's knowledge and interest in wildlife and nature led him to volunteer at the Wildlife Center of Silicon Valley, a local wildlife rehabilitation center, when he was 17. "I was seeking to find something else to do in my free time, while contributing to society," Che said. "There, I do laundry, clean things up, wash the dishes and feed the animals. A notably enjoyable part of feeding the animals is providing milk formula to baby squirrels. While they can be challenging to work with at times, feeding them is always a pleasure and they are just downright adorable."

Through his volunteer work, Che has made connections with other staff members. "Volunteering has helped me to develop better communication and cooperation skills. Making connections with other people has also helped me develop a sense of judgement to analyze the situation in each enclosure and to organize the tasks provided by the center staff."

Unfortunately, Che's opportunities to volunteer have been limited recently, due to the COVID-19 pandemic. "Despite the limited volunteering opportunities at this time, I still occasionally donate clothes to serve as bedding to the center. I eagerly await the time where I can return to volunteering at the Wildlife Center."

Che's summer project at the Lab will be to update the educational placards at Lake Haussmann under the direction of Chris Campbell from the Environmental, Safety and Health Organization. In addition, he also is helping Campbell research data on decontamination.

Che hopes to pursue a degree in environmental engineering. "At the end of summer, I plan on moving to Berkeley to learn independence skills and continue community college before transferring to a full-time university."

One of Micah Che's favorite things to do at the Wildlife Center is feeding milk formula to baby squirrels. "They are just downright adorable.





Singh was inspired by her father at an early age to pursue engineering.



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